The Texas Commission on Environmental Quality (TCEQ, agency, or commission) adopts the amendments to §§210.81 - 210.85.

Amended §§210.82 - 210.85 are adopted *with changes* to the proposed text as published in the July 22, 2016, issue of the *Texas Register* (41 TexReg 5366) and will be republished. The amendment to §210.81 is adopted *without change* and will not be republished.

Background and Summary of the Factual Basis for the Adopted Rules

House Bill 1902 (HB 1902 or bill), 84th Texas Legislature (2015), amended Texas Health and Safety Code (THSC), Chapters 341 and 366, and Texas Water Code, Chapter 26, in relation to the use of graywater and alternative onsite water. The bill requires TCEQ to develop standards to allow the reuse of graywater for toilet and urinal flushing.

Additionally, the bill creates a new regulatory classification for "alternative onsite water" which the bill defines as "rainwater, air-conditioning condensate, foundation drain water, storm water, cooling tower blowdown, swimming pool backwash and drain water, reverse osmosis reject water, or any other source of water considered appropriate by the commission." The bill directs TCEQ to develop similar standards for the reuse of this new source of water similar to graywater.

The bill provides authority to TCEQ to adopt and implement rules for the inspection and annual testing of graywater and alternative onsite water systems.

The bill allows an adjustment in the drainfield size of an on-site sewage facility (OSSF) if used in conjunction with a graywater reuse system.

Lastly, the bill requires TCEQ to develop a regulatory guidance manual to explain the graywater and alternative onsite water regulations.

The bill requires amendments to Chapter 210, Use of Reclaimed Water, and 30 TAC Chapter 285, On-Site Sewage Facilities. The adopted rules allow for a reduction in the OSSF drainfield size if the OSSF is used in conjunction with a graywater reuse system, move all graywater reuse to Chapter 210, authorize toilet and urinal flushing as an additional reuse of graywater, authorize the reuse of alternative onsite water, establish uses of and treatment standards for alternative onsite water similar to graywater, incorporate nationally recognized treatment standards for graywater and alternative onsite water when used for toilet and urinal flushing, and revise bacteria limits from fecal coliform to *Escherichia coli* (*E. coli*).

HB 1902 retains the existing prohibition on the commission requiring a permit for the residential use of less than 400 gallons per day of graywater and adds alternative onsite water to the permit prohibition.

Because TCEQ does not issue permits for graywater and alternative onsite water reuse systems, the adopted rules do not include an inspection or testing program for these systems.

A regulatory guidance manual to explain the graywater and alternative onsite water regulations will be developed after adoption of this rulemaking.

A corresponding rulemaking is published in this issue of the *Texas Register* concerning Chapter 285, Subchapter H, Disposal of Graywater.

Section by Section Discussion

The adopted amendment to Chapter 210, Subchapter F, changes the title from "Use of Graywater Systems" to "Use of Graywater and Alternative Onsite Water" to reflect the inclusion of alternative onsite water in the subchapter.

§210.81, Applicability

Adopted §210.81(a) includes alternative onsite water, is clarified by noting that the graywater and alternative onsite water must be generated and used onsite, and revises the term "domestic use" to "private residence." Adopted §210.81(b) is revised to improve clarity and readability. Adopted §210.81(c) specifically notes that the rule does not apply to the design, construction, or operation of an OSSF, as these facilities are regulated by Chapter 285.

Adopted §210.81(d) includes a savings clause that retains the previous version of the rules in effect for facilities that were installed under that version of the rule. Existing facilities that were installed under the previous rule are not required to make changes to

their facility to comply with the adopted rule, except as noted in adopted §210.83(j).

Lastly, adopted §210.81(e) specifically notes that the subchapter does not authorize the diversion or impoundment of state water. The diversion or impoundment of state water must be authorized under 30 TAC Chapter 297, Water Rights, Substantive. Alternative onsite water includes stormwater which must be impounded to collect and reuse under the adopted rule. A water right permit may be required to impound the stormwater.

§210.82, Definitions and General Requirements

The adopted amendment to §210.82 changes the title from "General Requirements" to "Definitions and General Requirements" to include definitions in the title.

The adopted rule adds definitions to §210.82(a) for "Alternative onsite water," "Alternative water reuse system," "Combined reuse system," and "Graywater reuse system."

The definition of "Alternative onsite water" in §210.82(a)(1) includes the same sources of water that are in the definition provided in THSC, §341.039(e), except cooling tower blowdown. The adopted rule has specific limitations on two sources of water that were included in THSC, §341.039(e): cooling tower blowdown and reverse osmosis reject water. The definition of "Alternative onsite water" specifically excludes cooling tower blowdown for the purposes of this subchapter, as that source of water must be reused in accordance with the requirements of Chapter 210, Subchapter E. Additionally, the definition of

"Alternative onsite water" excludes reverse osmosis reject water generated at industrial facilities, commercial facilities, and institutions, as that source of water generated at those facilities must be reused in accordance with the requirements of Chapter 210, Subchapter E. Reverse osmosis reject water generated at private residences and agriculture facilities may be reused in accordance with the requirements of the adopted rule.

The definitions for "Alternative water reuse system," "Combined reuse system," and "Graywater reuse system," in §210.82(a)(2), (3), and (5) respectively, are necessary because the requirements, especially as they relate to design and functionality of the system when it nears maximum capacity, are different depending on the source of water routed to each system. The differences are discussed later in this preamble.

Adopted §210.82(b) establishes requirements for alternative water reuse systems used at a private residence, industrial facility, commercial facility, institution, or agriculture facility. Adopted §210.82(b)(1) establishes examples of beneficial reuses of water from alternative water reuse systems. Providing examples rather than specified uses ensures that the rule allows other uses that the commission may not consider during this rulemaking. The adopted rule also allows for the reuse of an unlimited volume of water from an alternative water reuse system.

Adopted §210.82(b)(2) reiterates that reverse osmosis reject water generated at an industrial facility, commercial facility, or institution is not allowed to be stored or used in

an alternative water reuse system. If an industrial facility, commercial facility, or institution wants to reuse reverse osmosis reject water or a combination of reverse osmosis reject water and other sources of alternative onsite water, it must comply with the requirements of Chapter 210, Subchapter E.

Adopted §210.82(b)(3) allows for the reuse of water from an alternative water reuse system without an authorization from the commission. Property owners are responsible for compliance with the requirements of the adopted rule.

Adopted §210.82(b)(4) - (6) limits the application rate, allows spray irrigation of water from an alternative water reuse system under certain conditions, and includes a requirement that the system not create a nuisance, threaten human health, or damage the quality of surface water or groundwater. These requirements comply with THSC, §341.039(b) and (c)(6) - (8).

Adopted §210.82(b)(7) prohibits the reuse of swimming pool backwash and drain water within five days of adding chemicals for shock or acid treatment. This five-day waiting period allows for the chemicals to volatilize to the air prior to reuse.

Adopted §210.82(b)(8) requires water from an alternative water reuse system that is used for toilet or urinal flushing to meet *E. coli* limits, total suspended solids limits, and requires color specific pipes for distribution. The *E. coli* and total suspended solids limits are consistent with the National Science Foundation International/American National

Standards Institute (NSF/ANSI) Standard 350-2014: *On-site Residential and Commercial Water Reuse Treatment Systems*. The colored pipe complies with plumbing codes and 30 TAC Chapter 217, Subchapter M. An alternative water reuse system that stores rainwater only and the rainwater meets the potable requirements in 30 TAC §290.44 does not require the purple pipe.

Adopted §210.82(b)(9) prohibits alternative water reuse systems from having a connection to an organized wastewater collection system or OSSF. Wastewater collection systems and their associated wastewater treatment plants are not designed for inflow from alternative onsite water. The adopted rule allows for alternative water reuse systems to overflow onto the ground when the capacity of the system is exceeded; however, the authorized overflow must be induced by rainfall conditions. Failure to use the stored water in a timely manner is not an authorized overflow.

Adopted §210.82(b)(10) notes that an alternative water reuse system may be subject to backflow prevention requirements in §290.44 to protect the public water supply from cross-contamination. It is the responsibility of the property owner to determine if the system is subject to §290.44 and to comply with the applicable requirements of that rule.

Adopted §210.82(c) has general requirements for graywater reuse systems and combined reuse systems used at a private residence, industrial facility, commercial facility, institution, or agriculture facility. These requirements are in addition to the requirements in §§210.83 - 210.85. Adopted §210.82(c)(1) requires graywater reuse systems and

combined reuse systems to comply with the requirements of this subchapter and the local permitting authority.

Adopted §210.82(c)(2) and (3) limit the application rate of water from a graywater reuse system or a combined reuse system and includes a requirement that the system not create a nuisance, threaten human health, or damage the quality of surface water or groundwater. These requirements comply with THSC, §341.039(b) and (c)(6) and (7).

Adopted §210.82(c)(4) notes that a graywater reuse system or combined reuse system may be subject to backflow prevention requirements in §290.44 to protect the public water supply from cross-contamination. It is the responsibility of the property owner to determine if the system is subject to §290.44 and to comply with the applicable requirements of that rule.

§210.83, Residential Use of Graywater and Alternative Onsite Water

The adopted amendment to §210.83 changes the title from "Criteria for the Domestic Use of Graywater" to "Residential Use of Graywater and Alternative Onsite Water" to be more concise, to include alternative onsite water, and to use terminology common to the public.

Adopted §210.83(a) establishes requirements for graywater reuse systems and combined reuse systems used at a private residence. An authorization from the commission is not required for the residential use of graywater and alternative onsite water when the total

combined average is less than 400 gallons per day. The residential use of graywater and alternative onsite water when the total combined average is greater than or equal to 400 gallons per day does not require an authorization from the commission, unless directed by the executive director. Adopted §210.83(b) and (c) notes that the graywater and alternative onsite water must be generated and used onsite. Adopted §210.83(c) retains the list of approved uses of graywater from the former rule while adding toilet and urinal flushing and applying these uses to alternative onsite water.

Adopted §210.83(d) prohibits the overflow of graywater reuse systems and combined reuse systems onto the ground under any circumstances. Instead, in §210.83(d)(1) the rule requires that graywater reuse systems be designed so that the storage tank overflows into the wastewater collection system or OSSF unless prohibited by Chapter 285, Subchapter H. Adopted §210.83(d)(2) requires that combined reuse systems be designed so that the graywater can be diverted into the wastewater collection system or OSSF, unless prohibited by Chapter 285, Subchapter H. The graywater must be diverted prior to entering the storage tank and during periods of non-use of the combined reuse system or when the storage tank reaches 80% capacity. Adopted §210.83(d)(3) requires combined reuse systems that store stormwater, rainwater, and/or foundation drain water to have an automatic shutoff system to stop the inflow of these sources of water when the system reaches 80% capacity. The 20% reserved volume in the tank is to accommodate inflows of other sources of alternative onsite water.

Adopted §210.83(d)(1) and (2) require either a single air gap or two backflow preventers

between the reuse system and the wastewater system.

Adopted §210.83(e) and (f) continues the existing requirement for graywater to be stored in tanks and retains the existing tank and piping requirements, while applying these requirements to water from a combine reuse system.

Adopted §210.83(g) allows water from a graywater or combine reuse system to be applied via spray irrigation if certain conditions are met, including limiting exposure during irrigation events and meeting *E. coli* limits.

Adopted §210.83(h) establishes minimum standards for graywater and alternative onsite water. Monitoring and recordkeeping are not required; however, property owners may refer to the regulatory guidance document required by THSC, §341.039 for assistance in complying with the standards. Adopted §210.83(h)(1) requires graywater and alternative onsite water to be treated to remove debris by requiring a 50-mesh screen on the storage tank inflow. Removing this debris prevents clogs in the distribution pipes and reduces organic matter in the storage tank that can cause nuisance odors and vector attraction. Adopted §210.83(h)(2) prohibits swimming pool backwash and drain water from being reused within five days of adding chemicals for shock or acid treatment. This five-day waiting period allows for the chemicals to volatilize to the air prior to reuse. Lastly, adopted §210.83(h)(3) requires water from a graywater reuse system or a combined reuse system that is used for toilet or urinal flushing to meet *E. coli* limits, total suspended solids limits, and requires color specific pipes for distribution. The *E. coli* and total

suspended solids limits in adopted §210.83(h)(3)(A) and (B) are consistent with NSF/ANSI Standard 350-2014 for single-family residential dwellings (Class R). The colored pipe in adopted §210.83(h)(3)(C) complies with plumbing codes and Chapter 217, Subchapter M.

Adopted §210.83(i) adds alternative onsite water to the existing recommendations to residential builders and clarifies that residential builders should consider end use requirements and maintaining sufficient blackwater waste flow.

Adopted §210.83(j) clarifies the existing requirements for laundry graywater by replacing the phrase "effective date of this rule" with the exact date that former subsection (e) was effective, in §210.83(j)(1) replacing "must not create a public health nuisance" with "must not create a nuisance or threaten human health," and correcting grammatical errors in §210.83(j)(6). Additionally, adopted §210.83(j)(8) is revised to improve readability and adds a date for alterations. The date is the effective date of former subsection (f).

§210.84, Industrial, Commercial, or Institutional Use of Graywater and Alternative Onsite Water

The adopted amendment to §210.84 changes the title from "Criteria for Use of Graywater for Industrial, Commercial, or Institutional Purposes" to "Industrial, Commercial, or Institutional Use of Graywater and Alternative Onsite Water" to be more concise and to include alternative onsite water.

Adopted §210.84(a) reiterates that alternative onsite water generated at an industrial

facility, commercial facility, or institution does not include reverse osmosis reject water, as this source of water is regulated by Chapter 210, Subchapter E.

Adopted §210.84(b) revises language regarding authorization from the commission for the use of graywater and alternative onsite water at an industrial facility, commercial facility, or institution and moves former §210.84(c)(1)(B) to adopted §210.84(b). These amendments improve readability.

Adopted §210.84(c) clarifies that the graywater and alternative onsite water must be generated and used onsite.

Adopted §210.84(d) prohibits the overflow of graywater reuse systems and combined reuse systems onto the ground under any circumstances. Instead, adopted §210.84(d)(1) requires that graywater reuse systems be designed and constructed so that the graywater can be diverted to a wastewater collection system, OSSF, authorized wastewater outfall, or authorized disposal area. The graywater must be diverted when the graywater reuse system is not being used or when the system reaches maximum capacity.

Adopted §210.84(d)(2) requires that combined reuse systems be designed and constructed so that the graywater can be diverted to a wastewater collection system, OSSF, authorized wastewater outfall, or authorized disposal area prior to entering the combined reuse system. The graywater must be diverted when the combined reuse system is not being used or when the system reaches 80% capacity. Additionally, adopted

§210.84(d)(3) notes that combined reuse systems that store stormwater, rainwater, and/or foundation drain water must have an automatic shutoff system to stop the inflow of these sources of water when the system reaches 80% capacity. The 20% reserved volume is to accommodate inflows of other sources of alternative onsite water.

Adopted §210.84(d)(1) and (2) also require either a single air gap or two backflow preventers between the reuse system and the wastewater system.

Adopted §210.84(e) retains the list of approved uses of graywater from the former rule while applying these uses to alternative onsite water. Adopted §210.84(e)(1) - (5) revises the bacteria limits from fecal coliform to *E. coli;* however, the limit values for all uses were not revised from the former rule, except toilet or urinal flushing in §210.84(e)(4). Additionally, in §210.84(e)(2) the applicability of bacteria limits is revised based on whether there is public access or restricted public access to the application area rather than if there is public contact with the water or the public is present at the time of irrigation. Adopted §210.84(e)(4) revises the bacteria limits for toilet or urinal flushing from fecal coliform to *E. coli*, revises the limit values, and adds a limit for total suspended solids. The *E. coli* and total suspended solids limit values for toilet or urinal flushing are consistent with NSF/ANSI Standard 350-2014 for commercial facilities (Class C). Adopted §210.84(e)(4)(C) revises the color of the warning on exposed pipes carrying graywater and/or alternative onsite water to be consistent with Chapter 217, Subchapter M.

Adopted §210.84(f) was revised to improve readability.

§210.85, Agricultural Use of Graywater and Alternative Onsite Water

The adopted amendment to §210.85 changes the title from "Criteria for Use of Graywater for Irrigation and for Other Agricultural Purposes" to "Agricultural Use of Graywater and Alternative Onsite Water" to be more concise and to include alternative onsite water.

Adopted §210.85(a) revises language regarding authorization from the commission for agricultural use of graywater and moves former §210.85(c)(1)(B) to adopted §210.85(a). The amendment adds alternative onsite water and improves readability. Adopted §210.85(b) clarifies that the graywater and alternative onsite water must be generated and used onsite.

Adopted §210.85(c) prohibits the overflow of graywater reuse systems and combined reuse systems onto the ground under any circumstances. Instead, adopted §210.85(c)(1) requires that graywater reuse systems be designed and constructed so that the graywater can be diverted to a wastewater collection system or an OSSF, unless prohibited by Chapter 285. For graywater reuse systems, the graywater must be diverted when the graywater reuse system is not being used or when the system reaches maximum capacity.

Adopted §210.85(c)(2) requires that combined reuse systems be designed and constructed so that the graywater can be diverted to a wastewater collection system or an OSSF, unless prohibited by Chapter 285. The graywater must be diverted prior to entering the combined reuse system. The graywater must be diverted when the combined reuse

system is not being used or when the system reaches 80% capacity. Additionally, adopted §210.85(c)(3) requires combined reuse systems that store stormwater, rainwater, and/or foundation drain water to have an automatic shutoff system to stop the inflow of these sources of water when the system reaches 80% capacity. The 20% reserved volume is to accommodate inflows of other sources of alternative onsite water.

Adopted §210.85(c)(1) and (2) require either a single air gap or two backflow preventers between the reuse system and the wastewater system.

Adopted §210.85(d) retains the list of approved uses of graywater from the former rule while adding toilet and urinal flushing and applying these uses to alternative onsite water. Adopted §210.85(d)(1) - (4) and (6) revises the bacteria limits from fecal coliform to *E. coli*; however, the limit values for all uses were not revised from the former rule. Additionally, adopted §210.85(d)(2) notes the applicability of bacteria limits is revised based on whether there is public access or restricted public access to the application area rather than if there is public contact with the water or the public is present at the time of irrigation. Adopted §210.85(d)(4) clarifies that bacteria limits do not apply to the irrigation of fields that are not used for edible crops or grazing milking animals.

Adopted §210.85(d)(5) adds toilet or urinal flushing as an additional use of graywater and alternative onsite water at agricultural facilities. Adopted §210.85(d)(5)(A) - (C) requires water from a graywater reuse system or a combined reuse system that is used for toilet or urinal flushing to meet *E. coli* limits, total suspended solids limits, and requires color

specific pipes for distribution. The *E. coli* and total suspended solids limits are consistent with NSF/ANSI Standard 350-2014 for commercial facilities (Class C). The colored pipe complies with plumbing codes and Chapter 217, Subchapter M.

Adopted §210.85(e) was revised to improve readability.

Final Regulatory Impact Analysis Determination

TCEQ reviewed the adopted rulemaking in consideration of the regulatory analysis of major environmental rules required by Texas Government Code, §2001.0225 and determined that the rulemaking is not subject to Texas Government Code, §2001.0225(a) because it does not meet the definition of a "major environmental rule" as defined in Texas Government Code, §2001.0225(g)(3). The following is a summary of that review.

Texas Government Code, §2001.0225 applies to a "major environmental rule" adopted by a state agency, the result of which is to exceed standards set by federal law, exceed express requirements of state law, exceed requirements of delegation agreements between the state and the federal government to implement a state and federal program, or adopt a rule solely under the general powers of the agency instead of under a specific state law. A "major environmental rule" is a rule, the specific intent of which is to protect the environment or reduce risks to human health from environmental exposure and that may adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state.

As the Author's/Sponsor's Statement of Intent makes clear, the 84th Texas Legislature, 2015, enacted HB 1902 with the aim of lessening Texas' demand for freshwater resources by encouraging and expanding the allowable uses of graywater and other recycled water. By updating decades-old statutory provisions governing graywater disposal and reuse with new technologies and systems that expand the possibilities for safe reuse of graywater on commercial, industrial, and domestic properties, the statutory changes from HB 1902 would ideally result in less demand for freshwater resources for water needs that do not require freshwater standards. More specifically, the Statement of Intent articulates that "by clarifying the existing {Texas Health and Safety Code (THSC)} standards and expanding the scope and uses of graywater and alternative onsite water {and ensuring that the Texas Water Code conforms to these changes}, C.S.H.B. 1902 could act as another part of the solution to Texas' water challenges."

To expand the possibilities for safe reuse of graywater, HB 1902 brings current law and regulations up to date by directing TCEQ to, by rule, expand the sources of usable non-potable water to include "alternative onsite water" by defining and including it in relevant rule language governing graywater. HB 1902 furthers the use of graywater and alternative onsite water by allowing the indoor use of graywater for toilet and urinal flushing. Specifically, HB 1902 amends the THSC to specify that the minimum standards adopted and implemented by TCEQ rule for the use and reuse of graywater are for the indoor and outdoor use and reuse of treated graywater and alternative onsite water. HB 1902 promotes the use of graywater and alternative onsite water as viable, sustainable

resources as a way to avoid or prevent a lack of water for drinking and other essential purposes, which would be a human health and safety crisis.

Therefore, the specific intent of the adopted rulemaking is to lessen demand for freshwater resources for water needs that do not require freshwater standards by adopting and implementing minimum standards for the indoor and outdoor use and reuse of treated graywater and alternative onsite water for irrigation, certain domestic uses, and agricultural, commercial, and industrial uses. All of which help to prevent a human health and safety crisis due to a lack of water for drinking and other essential purposes. By promoting the use and reuse of treated graywater and alternative onsite water, which helps to avoid a lack of water for drinking and other essential purposes, the adopted rules protect human health and safety, as well as water quality; however, the adopted rules will not adversely affect the economy, a sector of the economy, productivity, competition, or jobs within the state or a sector of the state. Accordingly, the commission concludes that the adopted rulemaking does not meet the definition of a "major environmental rule."

Even if this rulemaking was a "major environmental rule," this rulemaking meets none of the criteria in Texas Government Code, §2001.0225, for the requirement to prepare a full regulatory impact analysis. First, this rulemaking is not governed by federal law. Second, it does not exceed state law but rather creates new minimum standards and corresponding processes under state law to ensure efficient regulatory oversight, while comprehensively protecting the state's natural resources. Third, it does not come under a

delegation agreement or contract with a federal program; and finally, it is not being adopted under the TCEQ's general rulemaking authority. This rulemaking is being adopted under a specific piece of state legislation from HB 1902, Texas Legislature, 2015, which amends the THSC to direct TCEQ to adopt and implement minimum standards for the indoor and outdoor use and reuse of treated graywater and alternative onsite water, while not threatening human health.

Therefore, the commission does not adopt the rule solely under the commission's general powers. The commission invites public comment on the Draft Regulatory Impact Analysis Determination.

The commission invited public comment regarding the Draft Regulatory Impact Analysis Determination during the public comment period. No comments were received regarding the regulatory impact analysis determination.

Takings Impact Assessment

TCEQ evaluated the adopted rulemaking and performed an analysis of whether it constitutes a taking under Texas Government Code, Chapter 2007. The following is a summary of that analysis.

The specific purpose of the adopted rulemaking is to lessen demand for freshwater resources for water needs that do not require freshwater standards by adopting and implementing minimum standards for the indoor and outdoor use and reuse of treated

graywater and alternative onsite water for irrigation, certain domestic uses, and agricultural, commercial, and industrial uses. All of which help to prevent a human health and safety crisis due to a lack of water for drinking and other essential purposes. The adopted rulemaking substantially advances this stated purpose by adopting language in amended Chapter 210 that expands the sources of water that can be reused by defining "alternative onsite water" and expands the allowable use and reuse of treated graywater and alternative onsite water to include toilet and urinal flushing.

Promulgation and enforcement of the adopted rules is not a statutory or constitutional taking of private real property because, as the commission's analysis indicates, Texas Government Code, Chapter 2007 does not apply to these adopted rules because these rules do not impact private real property. In HB 1902, the legislature expressed that as Texans strive to more efficiently use increasingly scarce water resources, clarifying the existing standards and expanding the scope and uses of graywater and alternative onsite water, coupled with the new technologies and systems that have been created, expanding the possibilities for safe reuse of graywater on commercial, industrial, and domestic properties, graywater reuse can contribute to meeting state water needs and helping to prevent a lack of water for drinking and other essential purposes. The public has access to vast quantities of graywater as the public themselves are the producers of their own graywater. Specifically, the adopted rulemaking does not apply to or affect any landowner's rights in any private real property because it does not burden (constitutionally), restrict, or limit any landowner's right to real property or reduce any property's value by 25% or more beyond that which would otherwise exist in the absence

of the regulations. For graywater, there are no real property rights that have been granted for use of an individual's own graywater. These actions will not affect or burden private real property rights because the graywater and alternative onsite water are generated onsite and used onsite by the same individual.

Even if there were real property rights issued for graywater produced by the public, the commission's analysis indicates that Texas Government Code, Chapter 2007, does not apply to these adopted rules because this is an action that is taken in response to a real and substantial threat to public health and safety; is designed to significantly advance the health and safety purpose; and does not impose a greater burden than is necessary to achieve the health and safety purpose. Thus, this action is exempt under Texas Government Code, §2007.003(b)(13). Lack of water for drinking and other essential purposes would be a health and safety crisis. This rulemaking could help to lessen the demand for freshwater resources for water needs that do not require freshwater standards, resulting in more drinking water and water for essential purposes.

Consistency with the Coastal Management Program

The commission reviewed the adopted rules and found that they are neither identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11(b)(2) or (4), nor will they affect any action/authorization identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11(a)(6). Therefore, the adopted rules are not subject to the Texas Coastal Management Program (CMP).

The commission invited public comment regarding the consistency with the CMP during the public comment period. No comments were received regarding the CMP.

Public Comment

The commission held a public hearing on August 16, 2016. The comment period closed on August 22, 2016. The commission received comments prior to the public comment period and related communications during the public comment period from Texas State Representative Donna Howard (Representative Howard) and Texas State Representative Paul D. Workman (Representative Workman). The commission received comments during the public comment period from the Biggerstaff Homes, Inc., Sunbelt Construction, LLC, Lipan Development, LLC (Biggerstaff); City of Austin (COA); City of Irving (COI); Harris County, Texas (Harris County); League of Women Voters of Texas (LWV); Texas Association of Builders (TAB); Texas On-Site Wastewater Association (TOWA); and Water ReNu, LLC (Water ReNu).

Ten commenters were in support of the rulemaking, no commenters were against the rulemaking, and the commenters suggested changes.

Response to Comments

General Comments

Comment

LWV supported the timely development of the rules, the inclusion of other onsite sources of water, and provision for a manual explaining the rules to the public.

Response

The commission acknowledges this comment.

Comment

Biggerstaff and Water ReNu recommended that graywater reuse systems should be allowed to contain reverse osmosis reject water and air conditioning condensate and that these sources of water be allowed to be routed to the wastewater collection system or OSSF.

Response

The commission disagrees with this comment. The rules are separated into three types of systems: alternative water reuse systems, graywater reuse systems, and combined reuse systems. A reuse system that contains graywater, reverse osmosis reject water, and air conditioning condensate is a combined reuse system. Combined reuse systems must be designed to divert graywater to the wastewater system and to have an automatic shutoff to stop inflows of stormwater, rainwater, and foundation drain water when the system reaches 80% capacity. The 20% reserved volume is to accommodate inflows of air-conditioner condensate and reverse osmosis reject water. No changes were made in response to this comment.

Comment

COI commented that reverse osmosis reject water should not be excluded from the rule.

Response

The commission partially agrees with this comment. Adopted §210.82(a)(1) states that reverse osmosis reject water generated at private residences and agricultural facilities can be used in accordance with this subchapter. However, reverse osmosis reject water from industrial facilities, commercial facilities, and institutions is authorized for reuse under Chapter 210, Subchapter E. No changes were made in response to this comment.

Comment

TOWA commented that toilet systems should not be allowed to drain into a graywater system unless solid waste is separated from liquid waste and the liquid waste meets bacteria and total suspended solids limits consistent with the National Science Foundation Standard 350. Harris County recommends that the rules allow reuse of blackwater for non-potable uses including irrigation and toilet and urinal flushing water.

Response

THSC, §341.039 and the revisions in HB 1902 do not allow reuse of toilet water, also known as blackwater. Blackwater may be reused in accordance with Chapter 210, Subchapters A - D.

Comment

Representatives Howard and Workman recommended that the rules not require graywater

systems to overflow to OSSF systems. They recommend that designated agents retain authority to determine whether to connect graywater and OSSF systems.

Response

The commission partially agrees with this comment. OSSF systems that have a reduced drainfield are not designed to accommodate the inflow of graywater. However, if the OSSF does not have a reduced drainfield, the OSSF is designed to accommodate the inflow of graywater. A designated agent should not be authorized to prohibit graywater from entering an OSSF that is designed to accommodate the graywater. No changes were made in response to this comment.

Comment

TOWA commented that the rules should allow individuals that are already trained in wastewater recycling and OSSFs to implement the requirements of the subchapter.

Response

The adopted rules allow flexibility for users to determine the best way to comply with the requirements of this subchapter. The adopted rules allow anyone, including individuals, to install and operate a reuse system. No changes were made in response to this comment.

Comment

TOWA commented that the rules should allow individuals that are already trained in

wastewater recycling and OSSFs to conduct the testing and reporting of reuse systems.

Response

The commission partially agrees with this comment. The adopted rules allow anyone, including individuals, to conduct the required monitoring of effluent from a reuse system. However, the rules do not require a reuse system to be tested nor monitoring results to be reported to the agency. The commission is not implementing the reuse system inspection and testing program identified in THSC, §341.039(b-1), as that provision of the statute is optional. No changes were made in response to this comment.

Comment

Water ReNu commented that the rules include requirements that add cost to graywater reuse systems. Increasing the cost of the systems will result in fewer builders incorporating reuse systems.

Response

The commission is directed by THSC, §341.039(b) to adopt standards to prevent nuisances, protect human health, and prevent damage to the quality of surface water and groundwater. The commission recognizes that the adopted rule must balance the protective standards with the cost-effectiveness of the requirements. For this reason, the rules do not include specific design criteria, but instead allow design flexibility to meet the standards. No changes were made in response to this comment.

Comment

Water ReNu commented that the rules should allow for off-the-shelf systems to be used which could increase graywater reuse.

Response

The commission agrees with this comment. The adopted rules do not include specific design criteria, but instead allow design flexibility. Commercially available off-the-shelf systems may be used if they meet the requirements in the rule. No changes were made in response to this comment.

Comment

Water ReNu requested clarification if the use of a single electronic controller for separate systems is allowed.

Response

The adopted rules do not include specific design criteria, but instead allows flexibility in designing reuse systems. This flexibility allows the use of a single controller for multiple systems. No changes were made in response to this comment.

Comment

Water ReNu requested clarification on the following scenario: if rainwater is stored in a rainwater only alternative water reuse system and also sent to a combined reuse system,

are the two distinct irrigation zones considered as a single combined reuse system or an alternative onsite reuse system and a combined reuse system.

Response

The type of reuse system depends on the type of water being stored and distributed. A reuse system that stores and distributes graywater and one or more sources of alternative onsite water is a combined reuse system. A reuse system that stores and distributes only alternative onsite water is an alternative water reuse system. It is possible to have more than one reuse system on a site. In the scenario described by the commenter, the system that stores and distributes the rainwater only would be an alternative water reuse system and the system that stores and distributes rainwater commingled with graywater would be a combined reuse system. The distribution system cannot be shared by different reuse systems. No changes were made in response to this comment.

Specific Comments

Comment

Water ReNu recommended revising §210.82(a)(1) from "industrial facilities" and "commercial facilities" to "industrial processes" and "commercial processes."

Response

The commission disagrees with this comment. This provision of the rule is clarifying that reverse osmosis reject water generated at facilities, other than residential and

agricultural, are regulated under Chapter 210, Subchapter E. No change was made in response to this comment.

Comment

Harris County commented that §210.82(b)(1) and §210.83(c)(2) should be revised to clarify if gardening includes edible items or just ornamental.

Response

The commission disagrees with this comment. Section 210.82(b)(1) and §210.83(c) allow reuse for landscape irrigation and gardening. Landscape is typically non-edible vegetation and gardening is edible vegetation. No change was made in response to this comment.

Comment

Harris County commented that the requirement in proposed §210.82(b)(6) and (c)(4) that reuse does not "damage the quality of surface water or groundwater" is vague and potentially requires a higher burden of proof. The commenter recommended revising "damage" to "impact."

Response

The commission partially agrees with this comment. Although "damage" may require a higher burden of proof, the adopted rule language matches THSC, §341.039(b). No change was made in response to this comment.

Comment

Harris County commented that §210.82(b)(9) has a grammatical error and should be revised to read: "…to an organized wastewater collection system or an onsite sewage facility (OSSF)."

Response

The commission agrees with this comment and revised §210.82(b)(9) as recommended.

Comment

Water ReNu recommended revising §210.82(c) by deleting "used at a private residence, industrial facility, commercial facility, institution, or agriculture facility" noting that the phrase is unnecessary since it includes all facility types regulated under the rule.

Response

The commission agrees with this comment and revised §210.82(c) as recommended.

Comment

Biggerstaff and Water ReNu recommended revising §210.82(c)(2) to allow the property owner or the installing contractor to provide notice to the relevant authorities. TAB commented that the notification required by §210.82(c)(2) is an unnecessary burden on individual property owners, and home builders may not be an authority on the graywater

system.

Response

This rulemaking implements HB 1902. According to the statement of intent for HB 1902, the intent was to encourage and expand the allowable uses of graywater and other recycled water. The notification requirement in §210.82(c)(2) resulted in unexpected complexities for property owners that want to reuse graywater and alternative onsite water. These complexities may dis-incentivize reuse, which conflicts with the intent of HB 1902. In response to this comment, the commission removed the notification requirement so that the adopted rule meets the intent of HB 1902, and re-numbered subsequent paragraphs.

Comment

Water ReNu recommended that §210.82(c)(6) be revised to allow air-conditioner condensate and reverse osmosis reject water in a combined reuse system to overflow to the wastewater system.

Response

Sections 210.83(d)(2) and (3), 210.84(d)(2) and (3), and 210.85(c)(2) and (3) require combined reuse systems to be designed to divert graywater to the wastewater system and to have an automatic shutoff to stop inflows of stormwater, rainwater, and foundation drain water when the system reaches 80% capacity. The 20% reserved volume is to accommodate inflows of air-conditioner condensate and reverse osmosis

reject water. Since the design requirements for combined reuse systems are contained in §§210.83 - 210.85, the commission removed §210.82(c)(6).

Comment

Harris County commented that §210.83(a) should be revised to read: "An authorization from the commission is not required for the residential use of graywater and alternative onsite water from a graywater reuse system, an alternative reuse system, or a combined reuse system when the total combined average…"

Response

Section 210.82(b) provides the requirements for alternative water reuse systems for all facility types. Section 210.82(b)(3) allows reuse of water from an alternative water reuse system without authorization from the commission and §210.82(b)(1) allows reuse of the water in any volume. The recommended change would conflict with the requirements of §210.82(b). No change was made in response to this comment.

Comment

Water ReNu recommended that §210.83(a) be clarified if the 400 gallons per day limit applies in total across the entire property or as individual limits for each reuse system.

Response

As proposed, an authorization is not required for reuse of less than 400 gallons per day. The 400 gallons per day limit applies to the total volume from graywater and

combined reuse systems on the entire property. Most residences generate less than 400 gallons per day of graywater, so it would be rare for a residence to require an authorization for graywater reuse. However, sources of alternative onsite water can exceed 400 gallons per day. Most residences that install a combined reuse system would exceed the volume limitation and have to obtain an authorization.

According to the statement of intent for HB 1902, the intent was to encourage and expand the allowable uses of graywater and other recycled water. Requiring an authorization for most residences that install a combined reuse system may dis-incentivize reuse, which conflicts with the intent of HB 1902.

THSC, §341.039 states that the commission may not require a permit for reuse of less than 400 gallons per day. The statute is silent to whether or not a permit is required when 400 gallons per day or more is reused. This provides the commission the discretion to determine if a permit is required for reuse of greater than 400 gallons per day. In response to this comment, the commission added a statement that authorization is not required for reuse of 400 gallons per day or more, unless directed by the executive director.

Comment

Biggerstaff and Water ReNu questioned whether there is sufficient cost benefit to requiring two backflow preventers for connecting graywater overflow to wastewater collection systems or OSSFs in §§210.83(d)(1) and (2), 210.84(d)(1) and (2), and

210.85(c)(1) and (2).

Response

The commission partially agrees with this comment. Installing backflow valves or preventers between the wastewater system and the reuse system prevents and protects against blackwater back-up into the reuse system and subsequently the building. The requirement for two valves or preventers ensures protection in the event that one of the valves or preventers malfunctions. However, the commission recognizes that an air gap is an effective method of preventing backflow. In response to this comment, the commission revised §§210.83(d)(1) and (2), 210.84(d)(1) and (2), and 210.85(c)(1) and (2) to allow for either one air gap or two backflow valves or preventers.

Comment

Harris County commented that §210.83(d)(2) and §210.85(c)(2) be revised to read: "Combined reuse systems must be designed and constructed so that 100% of the graywater, but not the alternative onsite water, can be diverted to an organized wastewater collection system or an OSSF…"

Response

The commission agrees with this comment, but the recommended change is unnecessary. Section 210.82(c)(6) requires that a combined reuse system be designed so that alternative onsite water is not allowed to enter the wastewater system. No

changes were made in response to this comment.

Comment

Water ReNu recommended that §210.83(d)(2) and §210.84(d)(2) be revised to state "Graywater must be diverted or redirected…"

Response

The commission disagrees with this comment. Including "diverted or redirected" in the rule text is redundant. No change was made in response to this comment.

Comment

Water ReNu recommended that §210.83(d)(3) and §210.84(d)(3) be revised to require the automatic shutoff system to activate "if this inflow will enter the graywater tank, or disrupt or prevent processing of graywater."

Response

The commission disagrees with this comment. A combined reuse system, by definition, contains graywater and one or more sources of alternative onsite water. Section 210.83(d)(3) and §210.84(d)(3) are requirements for a combined reuse system which has inflows of graywater and stormwater, rainwater, and/or foundation drain water. A reuse system that only contains stormwater, rainwater, and/or foundation drain water is an alternative water reuse system, subject to the requirements in §210.82(b). No changes were made in response to this comment.

Comment

Water ReNu commented that the requirements for irrigation at private residences is different than industrial, commercial, and agriculture facilities. The commenter noted that whether a property is a commercial premise or private residence, the graywater/alternative onsite water should be treated to an acceptable standard for irrigation and preventing human contact. The commenter recommended allowing non-*E. coli* treatment standards for irrigation, regardless of the property type.

Response

The proposed rules prohibited spray irrigation at private residences, but not at industrial, commercial, and agriculture facilities. Instead, the proposed rules required industrial, commercial, and agriculture facilities to meet *E. coli* limits for irrigation, which could include spray irrigation. The commission agrees that spray irrigation should be allowed for private residences if treated to meet *E. coli* limits. THSC, §341.039(c) states, "The commission may not require a permit for the domestic use of less than 400 gallons of graywater or alternative onsite water each day if the water…is distributed by a surface or subsurface system that does not spray into the air." The statute is silent on whether or not a permit is required when graywater or alternative onsite water is reused by spray irrigation. This provides the commission the discretion to determine if a permit is required for reuse via spray irrigation.

The commission disagrees that *E. coli* limits should not apply to irrigation of

graywater and alternative onsite water. These sources of water have *E. coli* in concentrations that can pose a risk to human health; therefore, it may be appropriate to treat the water to reduce these pathogens. In response to this comment, the commission revised §210.83(g) to allow reuse using a spray irrigation system only if: 1) the water meets *E. coli* limits to protect human health; 2) the water is applied at times when people and pets will not come into contact with the water; 3) the water is not applied during weather conditions that could result in discharges; 4) the water is applied at a rate to prevent ponding, puddling, or runoff; 5) the water cannot be sprayed or allowed to drift off the property; 6) the spray distribution system has suitable backflow prevention to protect the potable or raw water system; and 7) the system must be inspected and repaired as needed to prevent discharges. Section 210.82(b)(5) was similarly revised, with the exception of *E. coli* limits.

Comment

Biggerstaff recommended removing the requirement for a 50-mesh filter in §210.83(h)(1). Water ReNu recommended removing the requirement for a 50-mesh filter on graywater reuse systems but retaining it for alternative water reuse systems. TAB recommended adjusting the mesh scale to limit unnecessary flooding and damage to a home, as well as limit unnecessary complications to a homeowner.

Response

The commission disagrees with these comments. The 50-mesh screen filter is necessary to prevent the accumulation of organic solids into the storage tank and/or

distribution lines. Accumulation of organic solids in the storage tank will reduce the storage capacity of the tanks and increase the rate at which the water will become septic. A system that is septic creates nuisance odors. Accumulation of organic solids in the distribution lines will clog the lines, making the system unusable.
The commission selected 50-mesh because this size will be effective in preventing organic solids from entering the tank. No changes were made in response to these comments.

Comment

Water ReNu recommended that §210.83(i)(1) be revised to read: "…from all allowable sources, taking into consideration end use requirements and maintaining sufficient blackwater waste flow…"

Response

The commission agrees with this comment and revised §210.83(i)(1) as recommended.

Comment

COA commented that §210.83(j) should be revised to prohibit laundry graywater disposal onto the drainfield of an OSSF.

Response

The commission agrees that laundry graywater should not be disposed of on an OSSF drainfield. However, the recommended change was not made because §210.83(j)

applies to laundry graywater that has been disposed of onto the ground prior to January 6, 2005. The recommended change may require a property owner to alter their system by changing the location of the disposal area. Adopted §210.83(j)(8) prevents property owners from using a system that is altered after January 6, 2005. No change was made in response to this comment.

Comment

Harris County commented that TCEQ should explain what is meant by "significant" in proposed §210.83(j)(8) and how a regular consumer would distinguish between such products.

Response

Section 210.83(j)(8) was a recommendation rather than a regulatory requirement. As such, it is appropriate to include in the regulatory guidance document required by THSC, §341.039 rather than in the rule. In response to this comment, the commission removed proposed §210.83(j)(8) and renumbered the subsequent paragraph and will include this recommendation in the regulatory guidance document. This recommendation is intended to encourage homeowners to be aware of the ingredients in laundry detergents when choosing which product to purchase. Product ingredients are listed in order based on the amount of each ingredient, from greatest amount to least amount. A homeowner is encouraged to choose products either without these nutrients or with these nutrients listed lower in the ingredients list.

Comment

Water ReNu commented that *E. coli* limits for landscape irrigation and other uses are unnecessary and exceed the standards required by THSC, §341.039(b). The commenter recommended revising §210.84(e)(2) and (5) to replace the *E. coli* limits with water management techniques, such as limiting irrigation volume to that required for beneficial irrigation, site-based rainfall detection defining when additional makeup water should not be added and when irrigation should be suspended, minimum distances for subsurface irrigation, and diverting excess graywater, air-conditioner condensate, and reverse osmosis reject water to the wastewater system when sufficient water has already been irrigated.

Response

The commission disagrees with this comment. THSC, §341.039(b) requires the commission to adopt standards that assure that the use of graywater or alternative onsite water is not a nuisance and does not threaten human health or damage the quality of surface water and groundwater. The water management techniques recommended by the commenter will ensure that the graywater and alternative onsite water is beneficially reused rather than disposal, as required by the adopted rule. The recommended management techniques do not ensure protection of human health. No changes were made in response to this comment.

Comment

Water ReNu recommended that §210.84(a) be revised to allow small scale reverse osmosis

producing less than 50 gallons per day from non-industrial or non-commercial processes to be used in accordance with this subchapter.

Response

The commission disagrees with this comment. Reverse osmosis reject water from industrial facilities, commercial facilities, and institutions is authorized for reuse under Chapter 210, Subchapter E. No changes were made in response to this comment.

Comment

Biggerstaff commented that §210.84(e)(2) should be revised so that multi-family developments and small commercial developments with graywater volumes similar to residential reuse should not be required to install treatment and sanitizing systems. TAB commented that the rules should not categorize multi-family buildings as commercial. The commenters recommended that treatment and categorization should be based on irrigation loading, irrigation area size, and method of irrigation.

Response

The commission disagrees with these comments. THSC, §341.039(b) requires the commission to adopt standards that protect human health. Categorizing multi-family buildings as commercial facilities is necessary to protect human health. At private residences, the owner will know that a reuse system is installed and the location of distribution areas. Having knowledge of the system and distribution areas allows the owner to avoid contact with the reuse water as a method of protecting human health.

Occupants of multi-family buildings may or may not be owners and, therefore, may or may not be aware of a reuse system. Without the knowledge to avoid contact with the reuse water, protection of human health is achieved by meeting *E. coli* limits. No changes were made in response to these comments.

Comment

Harris County commented that §210.84(f) should be revised to require *E. coli* monitoring and recordkeeping for all systems that have *E. coli* standards. Harris County also commented that §210.84(f) incorrectly cites subsection (d)(2)(A) instead of subsection (e)(2)(A).

Response

The commission agrees with this comment and revised §210.84(f) to correct the citation and revised §210.84(f) and §210.85(e) to require monitoring and recordkeeping for all systems that are required to meet *E. coli* limits. Monitoring and recordkeeping are not required for residential reuse. Section 210.83(h) was revised for clarity.

Comment

COA commented that there is an inconsistent reference to OSSFs regulated under §285.81 within §210.85(c)(1) which regulates agricultural uses.

Response

The commission disagrees with this comment. Agricultural facilities can have single family residences that would qualify for a reduced OSSF effluent disposal system under Chapter 285, Subchapter H. No change was made in response to this comment.

Comment

Water ReNu requested clarification of §210.85(d)(4), noting that some Texas jurisdictions allow graywater reuse on citrus and nut trees without meeting *E. coli* limits. The commenter asked if the *E. coli* limits apply to all graywater or combined reuse systems regardless of property type and end use, specifically non-commercial applications where the produce is not sold as part of a commercial enterprise.

Response

Citrus and nut trees are edible crops. Water from a graywater reuse system or a combined reuse system that is used to irrigate these types of trees at an agricultural facility must meet the *E. coli* limits in §210.85(d)(2)(A). No changes were made in response to this comment.

SUBCHAPTER F: USE OF GRAYWATER AND ALTERNATIVE ONSITE WATER

§§210.81 - 210.85

Statutory Authority

The amended sections are adopted under Texas Water Code (TWC), §5.013 and §5.102, which establish the commission's general jurisdiction and provides general powers of the commission over other areas of responsibility as assigned to the commission under the TWC; TWC, §5.103 and §5.105, require the commission to adopt any rule or policy necessary to carry out its powers and duties under the TWC and other laws of the state; TWC, §5.120, requires the commission to administer the law so as to promote judicious use and maximum conservation and protection of the environment and the natural resources of the state; and TWC, §26.011, provides the commission with the authority to establish the level of quality to be maintained in, and to control the quality of, the water in the state by subjecting waste discharges or impending waste discharges to reasonable rules or orders adopted or issued by the Texas Commission on Environmental Quality in the public interest. Lastly, Texas Health and Safety Code (THSC), §341.039, specifically directs the commission to adopt and implement rules related to the expanded use of graywater and alternative onsite water; specifically directs the commission to adopt and implement minimum standards for the indoor and outdoor use and reuse of treated graywater and alternative onsite water for irrigation, certain domestic uses, and agricultural, commercial, and industrial uses; and requires the commission to adopt rules relating to standards for control of graywater, graywater standards, and standards for alternative onsite water. Specific statutory authorization derives from House Bill (HB)

1902, which amended TWC, §26.0311, and THSC, §341.039 and §366.012(a), relating to Standards for Control of Graywater, Graywater Standards, and Rules Concerning On-Site Disposal Systems.

The amendments implement the statutory amendments of HB 1902.

§210.81. Applicability.

(a) This subchapter applies to graywater and alternative onsite water generated and used at a private residence, commercial facility, industrial facility, institution, or agriculture facility regardless of the disposal method for other wastewater.

(b) This subchapter does not apply to reclaimed water which is regulated by Subchapters A - E of this chapter (relating to General Provisions; General Requirements for the Production, Conveyance, and Use of Reclaimed Water; Quality Criteria and Specific Uses for Reclaimed Water; Alternative and Pre-Existing Reclaimed Water Systems; and Special Requirements for Use of Industrial Reclaimed Water).

(c) This subchapter does not regulate the design, construction, or operation of on-site sewage facilities (OSSFs) but instead regulates the design, construction, and operation of alternative water reuse systems, combined reuse systems, and graywater reuse systems that may be located at a site that uses an OSSF. The design, construction, and operation of OSSFs are regulated by Chapter 285 of this title (relating to On-Site Sewage Facilities).

(d) An existing graywater system shall comply with the requirements of this subchapter as they existed on the date installation was completed. The previous version of this subchapter is continued in effect for this purpose.

(e) This subchapter does not authorize the diversion or impoundment of state water, as defined in Chapter 297 of this title (relating to Water Rights, Substantive).

§210.82. Definitions and General Requirements.

(a) Definitions. For the purposes of this subchapter, the following terms have the following meanings.

(1) Alternative onsite water--rainwater, air-conditioner condensate, foundation drain water, stormwater, swimming pool backwash and drain water, or reverse osmosis reject water. Cooling tower blowdown is regulated by Subchapter E of this chapter (relating to Special Requirements for Use of Industrial Reclaimed Water); therefore, for the purposes of this subchapter, all references to alternative onsite water do not include cooling tower blowdown. Reverse osmosis reject water generated at industrial facilities, commercial facilities, and institutions is regulated by Subchapter E of this chapter; therefore, for the purposes of this subchapter, all references to alternative onsite water do not include reverse osmosis reject water generated at industrial facilities,

commercial facilities, and institutions. Reverse osmosis reject water generated at private residences and agriculture facilities may be used in accordance with this subchapter.

(2) Alternative water reuse system--a system designed and constructed to store and distribute one or more sources of alternative onsite water. An alternative water reuse system shall not contain, store, or distribute any graywater.

(3) Combined reuse system--a system designed and constructed to store and distribute graywater and one or more sources of alternative onsite water.

(4) Graywater-- wastewater from showers, bathtubs, handwashing lavatories, sinks that are used for disposal of household or domestic products, sinks that are not used for food preparation or disposal, and clothes-washing machines. Graywater does not include wastewater from the washing of material, including diapers, soiled with human excreta or wastewater that has come into contact with toilet waste.

(5) Graywater reuse system--a system designed and constructed to store and distribute graywater only. A graywater reuse system shall not contain, store, or distribute any source of alternative onsite water.

(b) Alternative water reuse systems. The following requirements apply to alternative water reuse systems used at a private residence, industrial facility, commercial facility, institution, or agriculture facility.

(1) Water from an alternative water reuse system may be reused for beneficial purposes including but not limited to landscape irrigation, gardening, composting, foundation stabilization, and toilet and urinal flushing. An alternative water reuse system may store and use either a single source or a combination of sources of alternative onsite water, and in any volume.

(2) Reverse osmosis reject water generated at an industrial facility, commercial facility, or an institution is prohibited from being stored and used in an alternative water reuse system. Reverse osmosis reject water generated by an industrial facility, commercial facility, or an institution is regulated by Subchapter E of this chapter.

(3) Reuse of water from an alternative water reuse system does not require authorization from the commission if used in accordance with this subchapter. The property owner is responsible for ensuring that the alternative water reuse system is properly operated and maintained to comply with the requirements of this subchapter.

(4) Water from an alternative water reuse system must be applied at a rate that will not result in ponding or pooling, or cause runoff across the property lines or onto any paved surface.

(5) Water from an alternative water reuse system shall not be applied using a spray distribution system except in accordance with the following conditions.

(A) Water from the spray distribution system must be applied at times when people and pets are not actively using the distribution area.

(B) Water from the spray distribution system must not be applied during rainfall events, when the ground is frozen, or within 24 hours after one-half inch or more of rain.

(C) Water from the spray distribution system must be applied at a rate to prevent ponding, puddling, or runoff.

(D) Water from the spray distribution system must not be sprayed or allowed to drift off the property.

(E) The spray distribution system must not be connected to a potable or raw water irrigation system unless suitable backflow prevention is provided to protect the potable or raw water system.

(F) The spray distribution system must be inspected and repaired as needed to prevent discharges to water in the state or off the property.

(6) The storage and use of water from an alternative water reuse system must not create a nuisance, threaten human health, or damage the quality of surface water or groundwater.

(7) Swimming pool backwash and drain water cannot be used within five days of adding chemicals for shock or acid treatment.

(8) Water from an alternative water reuse system that is used for toilet or urinal flushing must meet the following requirements. Property owners may refer to the regulatory guidance document that is required by the Texas Health and Safety Code, §341.039, for assistance in complying with these requirements.

(A) For residential toilet or urinal flushing, *Escherichia coli* (*E. coli)* must be less than 14 most probable number (MPN) or colony-forming units (CFU) per 100 milliliters for 30-day geometric mean and less than 240 MPN or CFU per 100 milliliters maximum single grab sample. For industrial, commercial, or agricultural toilet or urinal flushing, *E. coli* must be less than 2.2 MPN or CFU per 100 milliliters for 30-day geometric mean and less than 200 MPN or CFU per 100 milliliters maximum single grab sample.

(B) Total suspended solids must be less than 10.0 milligrams per liter for 30-day geometric mean and less than 30.0 milligrams per liter maximum single grab sample.

(C) All exposed piping and piping carrying alternative onsite water within a building must be either purple pipe or painted purple; all buried piping must be either manufactured in purple, painted purple, taped with purple metallic tape, or bagged in purple; and all exposed piping must be stenciled in yellow with a warning reading "NON-POTABLE WATER." An alternative water reuse system that stores only rainwater, commonly referred to as a rainwater harvesting system, and uses the water for potable purposes in accordance with §290.44 of this title (relating to Water Distribution) is exempt from this subparagraph.

(9) An alternative water reuse system cannot have a physical connection to an organized wastewater collection system or an on-site sewage facility (OSSF). When the system reaches capacity, it is allowed to overflow onto the ground only if the overflow is caused by inflow of rainwater or stormwater. Overflow under these conditions is exempt from the requirement of paragraph (4) of this subsection.

(10) An alternative water reuse system may be subject to backflow prevention requirements in §290.44 of this title to protect public water supply systems from cross-contamination.

(c) Graywater reuse systems and combined reuse systems. The following requirements apply to all graywater reuse systems and combined reuse systems.

(1) Construction of a graywater reuse system or a combined reuse system, including storage and distribution systems, must comply with this subchapter and any requirements of the local permitting authority.

(2) Water from a graywater reuse system or a combined reuse system must be applied at a rate that will not result in ponding or pooling and will not cause runoff across the property lines or onto any paved surface.

(3) The storage and use of water from a graywater reuse system or a combined reuse system must not create a nuisance, threaten human health, or damage the quality of surface water or groundwater.

(4) A graywater reuse system or combined reuse system may be subject to backflow prevention requirements in §290.44 of this title to protect public water supply systems from cross-contamination.

§210.83. Residential Use of Graywater and Alternative Onsite Water.

(a) An authorization from the commission is not required for the residential use of graywater and alternative onsite water from a graywater reuse system or a combined reuse system when the total combined average is less than 400 gallons per day and the water is used in accordance with this subchapter. Unless directed by the executive director, an authorization from the commission is not required for the residential use of

graywater and alternative onsite water from a graywater reuse system or a combined reuse system when the total combined average is greater than or equal to 400 gallons per day and the water is used in accordance with this subchapter.

(b) The graywater and alternative onsite water must originate from a private residence.

(c) Water from a graywater reuse system or a combined reuse system may only be used at the private residence for the following purposes:

(1) to minimize foundation movement and cracking;

(2) for gardening;

(3) for composting;

(4) for landscaping; or

(5) for toilet or urinal flushing.

(d) Graywater reuse systems and combined reuse systems are not authorized to overflow onto the ground under any circumstance.

(1) Graywater reuse systems must be designed and constructed so that the storage tank required by subsection (e) of this section overflows to an organized wastewater collection system or an on-site sewage facility (OSSF) unless prohibited by Chapter 285, Subchapter H of this title (relating to Disposal of Graywater). The graywater must enter the organized wastewater collection system or OSSF through either one air gap or two backflow valves or backflow preventers.

(2) Combined reuse systems must be designed and constructed so that 100% of the graywater can be diverted to an organized wastewater collection system or an OSSF, unless prohibited by Chapter 285, Subchapter H of this title, prior to entering the storage tank required by subsection (e) of this section. Graywater must be diverted to the organized wastewater collection system or OSSF during periods of non-use of the system or if the storage tank required by subsection (e) of this section reaches 80% capacity. The graywater must enter the organized wastewater collection system or the OSSF through either one air gap or two backflow valves or backflow preventers.

(3) Combined reuse systems that store stormwater, rainwater, and/or foundation drain water must have an automatic shutoff system to stop the inflow of stormwater, rainwater, and foundation drain water into the combined reuse system. The automatic shutoff system must activate when the storage tank required by subsection (e) of this section reaches 80% capacity.

(e) Except as authorized by subsection (j) of this section, graywater reuse systems and combined reuse systems must store the water in tanks and the tanks must:

(1) be clearly labeled as non-potable water;

(2) restrict access, especially to children;

(3) eliminate habitat for mosquitoes and other vectors;

(4) be able to be cleaned; and

(5) meet the structural requirements of §210.25(i) of this title (relating to Special Design Criteria for Reclaimed Water Systems).

(f) Graywater reuse systems and combined reuse systems must use piping that meets the piping requirement of §210.25 of this title.

(g) Water from a graywater reuse system or a combined reuse system shall not be applied using a spray distribution system except in accordance with the following conditions.

(1) Water from the spray distribution system must meet the following limits: *Escherichia coli* (*E. coli)* must be less than 14 most probable number (MPN) or colony-

forming units (CFU) per 100 milliliters for 30-day geometric mean and less than 240 MPN or CFU per 100 milliliters maximum single grab sample.

(2) Water from the spray distribution system must be applied at times when people and pets are not actively using the distribution area.

(3) Water from the spray distribution system must not be applied during rainfall events, when the ground is frozen, or within 24 hours after one-half inch or more of rain.

(4) Water from the spray distribution system must be applied at a rate to prevent ponding, puddling, or runoff.

(5) Water from the spray distribution system must not be sprayed or allowed to drift off property.

(6) The spray distribution system must not be connected to a potable or raw water irrigation system unless suitable backflow prevention is provided to protect the potable or raw water system.

(7) The spray distribution system must be inspected and repaired as needed to prevent discharges to water in the state or off property.

(h) The property owner is responsible for ensuring that the graywater reuse system or combined reuse system is properly operated and maintained to achieve the following requirements. Monitoring and recordkeeping for *E. coli* and total suspended solids is not required. Property owners may refer to the regulatory guidance document that is required by the Texas Health and Safety Code, §341.039, for assistance in complying with these requirements.

(1) Graywater and alternative onsite water shall be treated to remove debris such as lint, leaves, twigs, and branches prior to entering the storage tank by use of a 50 mesh screen.

(2) Swimming pool backwash and drain water cannot be used within five days after adding chemicals for shock or acid treatment.

(3) Water from a graywater reuse system or a combined reuse system that is used for toilet or urinal flushing must meet the following requirements.

(A) *E. coli* must be less than 14 MPN or CFU per 100 milliliters for 30-day geometric mean and less than 240 MPN or CFU per 100 milliliters maximum single grab sample.

(B) Total suspended solids must be less than 10.0 milligrams per liter for 30-day geometric mean and less than 30.0 milligrams per liter maximum single grab sample.

(C) All exposed piping and piping carrying graywater and/or alternative onsite water within a building must be either purple pipe or painted purple; all buried piping must be either manufactured in purple, painted purple, taped with purple metallic tape, or bagged in purple; and all exposed piping must be stenciled in yellow with a warning reading "NON-POTABLE WATER."

(i) Builders of private residences are encouraged to:

(1) install plumbing in new housing to collect graywater and alternative onsite water from all allowable sources, taking into consideration end-use requirements and maintaining sufficient blackwater waste flow; and

(2) design and install a subsurface distribution system around the foundation of new housing to minimize foundation movement or cracking.

(j) Property owners who have been disposing of wastewater from residential clothes-washing machines, otherwise known as laundry graywater, directly onto the ground prior to January 6, 2005, may continue disposing of laundry graywater under the following conditions.

(1) The disposal area must not create a nuisance or threaten human health.

(2) Surface ponding must not occur in the disposal area.

(3) The disposal area must support plant growth or be sodded with vegetative cover.

(4) The disposal area must have limited access and use by residents and pets.

(5) Laundry graywater that has been in contact with human or animal waste must not be disposed onto the ground surface.

(6) Laundry graywater must not be disposed onto an area where the soil is wet.

(7) A lint trap must be affixed to the end of the discharge line.

(8) The system has not been altered after January 6, 2005, has not created a nuisance, and does not discharge graywater from any source other than clothes-washing machines.

§210.84. Industrial, Commercial, or Institutional Use of Graywater and Alternative Onsite Water.

(a) For the purposes of this section, alternative onsite water does not include reverse osmosis reject water, as this source of water is regulated by Subchapter E of this chapter (relating to Special Requirements for Use of Industrial Reclaimed Water).

(b) An authorization from the commission is not required for the use of graywater and alternative onsite water from a graywater reuse system or a combined reuse system at an industrial facility, commercial facility, or institution. Treatment required by this section does not require authorization from the commission.

(c) The graywater and alternative onsite water must be generated and used onsite.

(d) Graywater reuse systems and combined reuse systems are not authorized to overflow onto the ground under any circumstances.

(1) Graywater reuse systems must be designed and constructed so that 100% of the graywater can be diverted to an organized wastewater collection system, on-site sewage facility (OSSF), authorized outfall in a wastewater discharge permit, or authorized disposal area in a Texas Land Application Permit (TLAP). The graywater must be diverted to the organized wastewater collection system, OSSF, authorized outfall in a wastewater discharge permit, or authorized disposal area in a TLAP during periods of non-use of the

graywater reuse system or if the system reaches maximum capacity. The graywater must enter the organized wastewater system or OSSF through either one air gap or two backflow valves or backflow preventers.

(2) Combined reuse systems must be designed and constructed so that 100% of the graywater can be diverted to an organized wastewater collection system, OSSF, authorized outfall in a wastewater discharge permit, or authorized disposal area in a TLAP prior to entering the combined reuse system. Graywater must be diverted to the organized wastewater collection system, OSSF, authorized outfall in a wastewater discharge permit, or authorized disposal area in a TLAP during periods of non-use of the system or if the combined reuse system reaches 80% capacity. The graywater must enter the organized wastewater collection system or the OSSF through either one air gap or two backflow valves or backflow preventers.

(3) Combined reuse systems that store stormwater, rainwater, and/or foundation drain water must have an automatic shutoff system to stop the inflow of stormwater, rainwater, and foundation drain water into the combined reuse system. The automatic shutoff system must activate when the combined reuse system reaches 80% capacity.

(e) Water from a graywater reuse system or a combined reuse system may be used onsite for the following activities.

(1) Process water. Water from a graywater reuse system or a combined reuse system that is used for process water must be treated to a standard that allows the water to be used in operational processes.

(2) Landscape maintenance. Water from a graywater reuse system or a combined reuse system that is used for landscape maintenance must meet the following limits.

(A) If the water will be applied in areas with public access, the water must meet the following limits:

(i) *Escherichia coli* (*E. coli*), 20 most probable number (MPN) or colony-forming units (CFU) per 100 milliliters (ml), 30-day geometric mean; or

(ii) *E. coli* (not to exceed), 75 MPN or CFU per 100 ml, single grab sample.

(B) If the water will be applied in areas with restricted access to the public, the water must meet the following limits:

(i) *E. coli*, 200 MPN or CFU per 100 ml, 30-day geometric mean; or

(ii) *E. coli* (not to exceed), 800 MPN or CFU per 100 ml, single grab sample.

(3) Dust control. Water from a graywater reuse system or a combined reuse system that is used for dust control must meet the *E. coli* limits in paragraph (2)(B) of this subsection.

(4) Toilet or urinal flushing. Water from a graywater reuse system or a combined reuse system that is used for toilet or urinal flushing must meet the following requirements.

(A) *E. coli* must be less than 2.2 MPN or CFU per 100 ml for 30-day geometric mean and less than 200 MPN or CFU per 100 ml maximum single grab sample.

(B) Total suspended solids must be less than 10.0 milligrams per liter for 30-day geometric mean and less than 30.0 milligrams per liter maximum single grab sample.

(C) All exposed piping and piping carrying graywater and/or alternative onsite water within a building must be either purple pipe or painted purple; all buried piping installed after January 6, 2005, must be either manufactured in purple, painted purple, taped with purple metallic tape, or bagged in purple; and all exposed piping must be stenciled in yellow with a warning reading "NON-POTABLE WATER."

(5) Other uses. Water from a graywater reuse system or a combined reuse system that is used for other similar activities must:

(A) meet the *E. coli* limits in paragraph (2)(A) of this subsection if used in a way that the public may come into contact with the water; or

(B) meet the *E. coli* limits in paragraph (2)(B) of this subsection if used in a way that the public will not come into contact with the water.

(f) Water from a graywater reuse system or a combined reuse system that is required to meet the *E. coli* limits in subsection (e) of this section must be monitored for *E. coli* at least monthly. These records must be maintained at the site and be readily available for inspection by the commission for a minimum of five years.

§210.85. Agricultural Use of Graywater and Alternative Onsite Water.

(a) An authorization from the commission is not required for the use of graywater and alternative onsite water from a graywater reuse system or a combined reuse system for agricultural purposes. Treatment required by this section does not require authorization from the commission.

(b) The graywater and alternative onsite water must be generated and used onsite.

(c) Graywater reuse systems and combined reuse systems are not authorized to overflow onto the ground under any circumstances.

(1) Graywater reuse systems must be designed and constructed so that 100% of the graywater can be diverted to an organized wastewater collection system or on-site sewage facility (OSSF), unless prohibited by Chapter 285, Subchapter H of this title (relating to Disposal of Graywater). The graywater must be diverted during periods of non-use of the graywater reuse system or if the system reaches maximum capacity. The graywater must enter the organized wastewater collection system or OSSF through either one air gap or two backflow valves or backflow preventers.

(2) Combined reuse systems must be designed and constructed so that 100% of the graywater can be diverted to an organized wastewater collection system or OSSF, unless prohibited by Chapter 285, Subchapter H of this title prior to entering the combined reuse system. Graywater must be diverted to the organized wastewater collection system or OSSF during periods of non-use of the system or if the combined reuse system reaches 80% capacity. The graywater must enter the organized wastewater collection system or the OSSF through either one air gap or two backflow valves or backflow preventers.

(3) Combined reuse systems that store stormwater, rainwater, and/or foundation drain water must have an automatic shutoff system to stop the inflow of

stormwater, rainwater, and foundation drain water into the combined reuse system. The automatic shutoff system must activate when the combined reuse system reaches 80% capacity.

(d) Water from a graywater reuse system or a combined reuse system may be used for the following activities.

(1) Process water. Water from a graywater reuse system or a combined reuse system that is used for irrigation and other agricultural purposes may be treated to a standard that allows the water to be used in operational processes.

(2) Landscape maintenance. Water from a graywater reuse system or a combined reuse system that is used for landscape maintenance must meet the following limits.

(A) If the water will be applied in areas with public access, the water must meet the following limits:

(i) *Escherichia coli* (*E. coli*), 20 most probable number (MPN) or colony-forming units (CFU) per 100 milliliters (ml), 30-day geometric mean; or

(ii) *E. coli* (not to exceed), 75 MPN or CFU per 100 ml, single grab sample.

(B) If the water will be applied in areas with restricted access to the public, the water must meet the following limits:

(i) *E. coli*, 200 MPN or CFU per 100 ml, 30-day geometric mean; or

(ii) *E. coli*, 800 MPN or CFU per 100 ml, single grab sample.

(3) Dust control. Water from a graywater reuse system or a combined reuse system that is used for dust control must meet the *E. coli* limits in paragraph (2)(B) of this subsection.

(4) Irrigation of fields. Water from a graywater reuse system or a combined reuse system that is used to irrigate fields where edible crops are grown or fields that are pastures for milking animals, the water must meet the *E. coli* limits in paragraph (2)(A) of this subsection. *E. coli* limits do not apply to graywater and alternative onsite water that is used to irrigate fields other than those where edible crops are grown or fields that are pastures for milking animals.

(5) Toilet or urinal flushing. Water from a graywater reuse system or a combined reuse system that is used for toilet or urinal flushing must meet the following requirements.

(A) *E. coli* must be less than 2.2 MPN or CFU per 100 ml for 30-day geometric mean and less than 200 MPN or CFU per 100 ml maximum single grab sample.

(B) Total suspended solids must be less than 10.0 milligrams per liter for 30-day geometric mean and less than 30.0 milligrams per liter maximum single grab sample.

(C) All exposed piping and piping carrying graywater and/or alternative onsite water within a building must be either purple pipe or painted purple; all buried piping must be either manufactured in purple, painted purple, taped with purple metallic tape, or bagged in purple; and all exposed piping must be stenciled in yellow with a warning reading "NON-POTABLE WATER."

(6) Other uses. Water from a graywater reuse system or a combined reuse system that is used for other similar activities must:

(A) meet the *E. coli* limits in paragraph (2)(A) of this subsection if used in a way that the public may come into contact with the water; or

(B) meet the *E. coli* limits in paragraph (2)(B) of this subsection if used in a way that the public will not come into contact with the water.

(e) Water from a graywater reuse system or a combined reuse system that is required to meet the *E. coli* limits in subsection (d) of this section must be monitored for *E. coli* at least monthly. These records must be maintained at the site and be readily available for inspection by the commission for a minimum period of five years.